

We claim:

1. A recombinant expression vector comprising a polynucleotide selected from the group consisting of:

- (a) a polynucleotide encoding the polypeptide of SEQ ID NO:1;
- 5 (b) a polynucleotide encoding the polypeptide of SEQ ID NO: 2;
- (c) a polynucleotide that hybridizes under stringent conditions to the polynucleotide of (a) and/or (b) or a complement thereof; and
- (d) a polynucleotide sequence which is degenerate as a result of the genetic code to the sequences defined in (a), (b) or (c).

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2. A cell transfected with the vector of claim 1.

3. The cell of claim 2 that is a eukaryotic cell or a mammalian cell.

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4. A method for producing an adipocypsin protein, peptide or fusion protein comprising culturing a recombinant cell that has been genetically engineered to produce an increased amount of an adipocypsin protein, peptide, or fusion protein.

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5. An isolated or recombinant polypeptide comprising SEQ ID NO:1, SEQ ID NO: 2, or a bioactive or immunogenic fragment of either thereof.

6. The adipocypsin polypeptide of claim 5 which suppresses the conversion of preadipocytes to adipocytes.

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7. The polypeptide or fragment of claim 5, wherein the polypeptide has an 30 amino acid sequence that is at least 90% identical to SEQ ID NOS:1 or 2.

8. A fusion protein comprising a polypeptide of claim 5.

9. A polynucleotide primer, probe, antisense oligonucleotide or ribozyme comprising
5 at least 15 contiguous bases complementary to those encoding SEQ ID NO:1 or SEQ ID NO:
2.

10. An antibody, or binding fragment thereof, wherein the antibody or antibody
fragment specifically binds to the polypeptide of claim 5.
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11. An isolated cell capable of secreting the antibody of claim 10.

12. A method of detecting an adipocypsin gene product in a sample comprising:
a) contacting the sample with a probe that binds the gene product wherein the probe
15 and the gene product form a complex, and detecting the formation of the complex; or,
b) specifically amplifying the gene product in the biological sample, wherein said gene
product is a polynucleotide, and detecting the amplification product; wherein the formation of
the complex or presence of the amplification product is correlated with the presence of the
adiponectin gene product in the biological sample.

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13. A method of identifying a modulator of adipocypsin activity comprising
contacting a cell in the presence of an adipocypsin and a test compound and assaying for a
biological effect that occurs in the presence but not absence of the test compound, wherein a
test compound that induces a biological effect is identified as a modulator of adipocypsin
25 activity.

14. The method of claim 13, wherein the biological effect is suppression of conversion of preadipocytes to adipocytes.

15. A method of treating an adipocypsin-mediated condition in a mammal comprising administering an agent that modulates the activity or expression of adipocypsin in a cell or tissue in the mammal.

16. A pharmaceutical composition comprising an adipocypsin polypeptide as claimed in claim 5 and one or more materials selected from the group consisting of a pharmaceutically acceptable excipient, a carrier, a co-active and a diluent .

17. A composition comprising an adipocypsin polypeptide wherein the adipocypsin polypeptide is recombinant, isolated, purified, or synthesized.

18. The composition according to claim 16 effective to elicit a plasma adipocypsin polypeptide concentration of between 1 $\mu\text{g/mL}$ and 20 $\mu\text{g/mL}$.

19. The composition according to claim 16 effective to elicit a plasma adipocypsin polypeptide concentration of between 1.9 $\mu\text{g/mL}$ and 17 $\mu\text{g/mL}$.

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20. A method of diagnosing in an individual the presence of, or pre-disposition towards developing, a disease state comprising determining the level of an adipocypsin polypeptide in the individual and comparing the level with a level characteristic of an individual who is not suffering from the disease state, wherein a difference in levels is indicative of the presence of or propensity to develop the disease.

21. The method according to claim 20 wherein the disease state is selected from hyperglycemia, insulin resistance, , type 2 diabetes mellitus, obesity, hypertension, atherosclerosis, coronary heart disease, ischemic heart disease, polycystic ovary syndrome, and a metabolic syndrome associated with insulin resistance.

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22. The method according to claim 20 wherein the assessment method utilises electrophoresis, HPLC, or mass spectrometry.

23. A method for treating a disease state associated with adipocyspin dysregulation
10 comprising administering an effective amount of a pharmaceutically acceptable composition comprising an adipocyspin polypeptide.

24. The use of an adipocyspin polypeptide, with or without pharmaceutically acceptable excipients, co-actives, diluents and containment vessels, in the preparation of a
15 pharmaceutical composition or medicament or dosage unit useful in a mammalian patient: i) in the treatment of a disease state associated with adipocyspin polypeptide regulation; or ii) to enhance the effects of insulin; or iii) inhibit obesity or states associated with increased fat mass.

20 25. A formulation or dosage form capable of delivery of an effective amount of an adipocyspin polypeptide when administered or self administered to a human being or other mammal sufficient to decrease the amount of adipose tissue or body mass.

26. A formulation or dosage form according to claim 25 wherein the adipocyspin
25 polypeptide is human adipocyspin.

27. A method of treating a mammal to prevent and/or reverse obesity or increased adipose tissue mass and/or any of the characteristics of obesity or increased adipose tissue mass which comprises or includes administering to that patient adipocyspin and/or an agonist thereof.

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28. An article of manufacture comprising or including a vessel containing an adipocyspin polypeptide, and/or an adipocyspin agonist; and instructions for use thereof for treating, preventing or reversing obesity or increased adipose tissue mass and/or any characteristic of obesity or increased adipose tissue mass.

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29. A method of measuring adipocyspin in a mammal which comprises or includes assaying the concentration of adipocyspin in blood or tissue(s).

30. A method of claim 29 wherein the concentration is determined by immunological
15 methods such as radioimmunoassay (RIA), and/or ELISA.